

REMARKS/ARGUMENTS

The amendments set forth above and the following remarks are responsive to the points raised by the Office Action dated September 22, 2005. In view of the amendments set forth above and the following remarks, reconsideration is respectfully requested.

The Pending Claims

Claims 1-28 remain pending.

Claim 1 has been amended to describe the invention more clearly. No new matter has been added, and the basis for the amended claim language may be found within the original specification, claims and drawings.

The amendments to claim 1 are supported in the specification at, for example, page 1, lines 9-12; lines 15-16 and lines 26-28. Entry of the above is respectfully requested.

The Office Action

Claims 1-13, 20, 22 and 24-28 were rejected under 35 U.S.C. § 103 as unpatentable over U.S. Patent No. 5,352,507 to Bresson et al. (hereinafter, "Bresson") in view of U.S. Patent No. 5,347,927 to Berna et al. (hereinafter, "Berna").

Claims 14-19 were rejected under § 103 as unpatentable over Bresson in view of Berna as applied to claims 1 and 2, and further in view of U.S. Patent No. 5,754,931 to Castelli et al. (hereinafter, "Castelli").

Claim 21 was rejected under § 103 as unpatentable over Bresson in view of Berna as applied to claims 1 and 2 above, and further in view of U.S. Patent No. 6,699,419 to Kia et al. (hereinafter, "Kia").

Claim 23 was rejected under § 103 as unpatentable over Bresson in view of Berna as applied to claims 1 and 2 above, and further in view of U.S. Patent Publication No. 2002/0182328 to Asai et al. (hereinafter, "Asai").

Each of these rejections is separately and respectfully traversed.

A *prima facie* case of obviousness has at least two requirements. First, the cited combination of references must disclose all of the claim elements. Second, there must be some

suggestion or motivation for one of ordinary skill in the art to combine the references to arrive at the presently claimed invention (MPEP § 2143). Because the Office Action fails to meet at least both of these requirements, the § 103 rejection is improper and should be withdrawn.

According to the Office Action, Bresson teaches a seamless multilayered printing sleeve, as claimed, including a printing layer 6, a compressible layer 4 and a circumferential stiffening layer (7, 5 or 7a) disposed between the printing layer 6 and the compressible layer 4. The Office Action states that the stiffening layer (7, 5, or 7a) functions as a reinforcing layer placed on the compressible layer, and that Bresson teaches that either elastomer layer 7 or 7a may have a thickness of about 0.1 to 0.5 mm.

The § 103 rejection is improper because the combination of Bresson and Berna fails to teach all of the elements of independent claim 28 and amended claim 1. Amended claim 1 recites that the circumferential stiffening layer has a thickness not exceeding 0.5 mm and a Young's modulus in the circumferential direction of at least 400 MPa. Claim 28 recites a circumferential reinforcing composite material having a total thickness between 0.2-0.5 mm and a Young's modulus in the circumferential direction between 400-100,000 MPa. Bresson teaches at column 8, lines 9-24 that "... it is preferred to use the fibers in the middle 5 of the three layers. The middle elastomer layer 5 could *then* have a thickness, for example, of 1 mm, while elastomer layers 7 and 7a may have a thickness of about 0.1 to 0.5 mm" (emphasis added). Bresson further teaches the "preferred use of *unreinforced* elastomer layers 7 and 7a on either side of the *reinforced elastomer layer 5*" (col. 8, lines 17-18; emphasis added). Thus, Bresson teaches that the *unreinforced* layer 7 or 7a has a thickness between 0.1 and 0.5 mm, and that the layer 5, when reinforced, has a thickness of 1 mm (col. 8, lines 11-22). Because the reinforced layer 5 of Bresson has a thickness of 1 mm, which far exceeds the thickness claimed, it cannot properly be characterized as the claimed circumferential stiffening layer. Because Bresson only teaches that the layers 7 and 7a have a thickness of 0.1 to 0.5 when unreinforced, and does not disclose the size of layers 7 and 7a if they were reinforced, layers 7 and 7a cannot properly be characterized as the claimed circumferential stiffening layer. Berna also does not disclose a circumferential stiffening layer having the claimed thickness. Because the combination of

Bresson and Berna does not teach a circumferential stiffening layer with the claimed thickness, the § 103 rejection cannot be maintained.

The combination of Bresson and Berna also fails to teach a Young's modulus in the circumferential direction of at least 400 MPa, as claimed in amended claim 1, or of 400-100,000 MPa, as claimed in claim 28. The Office Action correctly acknowledges that Bresson does not state to what extent the modulus of elasticity in the circumferential direction should go beyond the 200 MPa stated. According to the Office Action, Berna teaches a multilayered printing sleeve having a spirally-integrated, reinforced compressible layer 14 underneath the printing layer 12 that has a tensile modulus in the circumferential direction of 50-2000 MPa, and that one of ordinary skill in the art would provide the fiber reinforced layer 7 or 7a of Bresson with modulus of elasticity in the circumferential direction at 400 MPa or more in order to make a carrier tube unnecessary and lower manufacturing costs.

Berna teaches a spirally-integrated, reinforced compressible layer 14 having a tensile modulus in the circumferential direction of 50-2000 MPa (col. 9, lines 56-58). However, the only teaching of how to attain this modulus value in Berna is by way of the special spirally-integrated, reinforced compressible layer 14, which includes void-containing elastomer layers 20 and reinforcing sheets 18. The modulus value of 50-2000 MPa that is taught in Berna refers to this spirally-wound layer 14 that includes, in combination, both the void-containing elastomer layers 20 and the reinforcing sheet layer 18. Berna does not disclose the modulus in the circumferential direction of either the elastomer layer 20 or the reinforcing sheets 18 individually. Thus, it cannot be said that Berna teaches a circumferential stiffening layer having the claimed Young's modulus in the circumferential direction. Because the combination of Bresson and Berna fails to disclose the claimed Young's modulus, the § 103 rejection cannot be maintained.

The Office Action also fails to set forth a *prima facie* case of obviousness because one of ordinary skill in the art would not be motivated to combine the teachings of Bresson and Berna to arrive at the presently claimed invention.

Berna itself teaches away from the structure taught in Bresson. Bresson is a continuation-in-part of another patent, U.S. Patent No. 5,205,213 ("the '213 patent"). Berna

distinguishes the '213 patent as having concentric, separated, layered, complex structures, and that the multilayered construction of the '213 patent is undesirable because it requires many manufacturing steps and close tolerances (col. 1, lines 38-49). Berna teaches a printing sleeve in which the separate compressible layers and reinforcing layers are replaced by spirally-integrated, reinforced compressible tubular structure (col. 1, line 63 – col. 2, line 1). Unlike the single circumferential stiffening layer of the claimed invention, the “spirally-integrated” structure 14 of Berna is a lamination of two different kinds of layers, as shown in Figures 5-7. In Figure 6, for example, the spirally-integrated structure is an alternation of void-containing elastomers 20 and reinforcing sheets 18, spirally wound. The embodiment of Figure 8 is also distinguishable from the claimed invention because its radially internal layer 14 is a stiffening layer instead of a compressible layer, as claimed (col. 5, lines 32-41). Thus, because the structures of Bresson and Berna are so different, and because Berna itself teaches away from Bresson and the claimed invention, there is no motivation to combine Bresson and Berna. Accordingly, the § 103 rejection cannot be maintained.

Moreover, providing the structure of Bresson with the Young's modulus of Berna, as proposed in the Office Action, would not provide the claimed printing sleeve. In the spirally-integrated, reinforced compressible layer 14 of Berna, there is no radially internal compressible layer, as claimed in amended claim 1. The compressible layer of Berna is an intermediate layer that is part of the spirally-wound structure 14. This is quite different from the structure of the claimed printing blanket, which comprises, successively and radially from the interior to the exterior, a radially internal compressible layer, a circumferential stiffening layer, and a printing layer. Because the structures of Bresson and Berna are so different, one of ordinary skill in the art would not be led to modify Bresson in view of Berna.

The claimed invention advantageously provides a printing sleeve made of three successive concentric single layers having no internal metal carrier but which still provides the function of such a metal carrier. An internal metal carrier avoids the formation of a wave or a bulge in the vicinity of the nip during printing which would lower the printing quality and decrease the lifespan of the printing sleeve. According to the invention, this internal metal carrier can advantageously be replaced by an intermediate circumferential stiffening layer having

the claimed mechanical parameters. The claimed thickness provides the necessary flexibility in the radial direction to permit radial compressibility by allowing a local deformation of the intermediate layer in the nip without generating a bulge (page 4, line 25 to page 5, line 2). As mentioned in the specification at page 4, line 22, the stiffening layer can be subjected to 100 to 500 μm of deflection without breakage. The claimed Young's modulus provides the necessary stiffness to replace the metal carrier.

Since amended independent claim 1 is allowable for the reasons set forth above, all of the dependent claims are also allowable because they depend from allowable independent claim 1. Castelli, Kia, and Asai do not cure the deficiencies of Bresson and Berna, and therefore the rejections of the dependent claims fall with the rejection of independent claim 1.

Dependent claim 6 is also allowable, not only because it depends from allowable independent claim 1, but also because it defines limitations not taught by any of the cited references. Claim 6 recites a printing sleeve wherein the matrix is 20-80 weight percent of the circumferential stiffening layer, and the reinforcing elements are 80-20 weight percent of the circumferential stiffening layer. The Office Action correctly acknowledges that Bresson does not state the weight percent of the circumferential stiffening layer and the reinforcing elements. According to the Office Action, Figure 11 appears to show that the 20-80 weight percent limitation of claim 6 is met.

Figure 11 of Bresson, however, is insufficient to determine any specific weight percentage. The crosses are only a symbolic representation, and are not even numbered or identified. Because none of the cited references teach specific weight percentages of the reinforcing elements or the matrix of the circumferential stiffening layer, claim 6 is also patentable over the cited references.

Dependent claims 11, 25, and 26 are also allowable, not only because they depend from allowable independent claim 1, but also because they define limitations not taught by any of the cited references. Claim 11 recites an elongation at breakage in a circumferential direction of the circumferential stiffening layer greater than 1.2%. Claim 25 recites a removal facilitating layer having a modulus of 5 to 800 MPa, a thickness of 0.02 to 0.1 mm, and a surface with an Ra factor less than 0.5 microns. Claim 26 recites that the facilitating layer has a friction coefficient

on steel or on composite resin between 0.2 and 0.5. According to the Office Action, these claimed parameters would have been obvious to one of ordinary skill in the art through routine experimentation. However, nothing in Bresson or any of the cited references leads one of ordinary skill in the art to the specifically claimed parameters. Because nothing in the cited references would lead one of ordinary skill in the art to the claimed parameters, claims 11, 25 and 26 are also allowable.

Claims 14-19 are also allowable, not only because they depend from allowable claim 1, but also because they define limitations not taught by any of the cited references. According to the Office Action, it would have been obvious to those having ordinary skill in the art to provide the printing sleeve of Bresson as modified by Berna with a compressible layer made of microspheres in order to achieve increased compressibility of the compressible layer. However, Castelli teaches a complex structure in which the radially internal fabric layer 40 is part of a carcass 20 that is adhered to a printing apparatus by adhesive layer 30, which is contrary to and very different from the presently claimed invention. Because Castelli is so contrary to the presently claimed invention, one of ordinary skill in the art would not be led to modify Bresson and Berna in view of Castelli to arrive at the presently claimed invention. Therefore, claims 14-19 are also patentable.

Conclusion


For the reasons set forth above, reconsideration is respectfully requested.

Application No. 10/686,777

Reply to Office Action

If, in the opinion of the Examiner, a telephone conference would expedite prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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